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Even More Complex After All These Years: What the Complexity of the "How?" Question of Tailoring Claim Scope Has to Say About the "Who?" Question

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Even More Complex After All These Years: What the Complexity of the "How?" Question of Tailoring Claim Scope Has to Say About the "Who?" Question

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In *On the Complex Economics of Patent Scope*, published in 1990 in the Columbia Law Review,[1] Robert Merges and Richard Nelson made several important contributions to patent scholarship. *Complex Economics* added a strong, knowledgeable voice to the then-nascent argument that the dynamic costs attributable to the reach of today's patents into tomorrow's technology is a critical variable in the calculus required to optimize patent protection.[2] It mapped out an industry-by-industry approach to the optimal tailoring of claim scope, pointing to factual differences between the innovation processes that drive technological progress in different industries and demonstrating how these factual differences could lead to a need for legal differences in permissible patent breadth.[3] It backed up its argument with historical evidence of the different effects that broad patents have had on technological progress in different industries.[4] It identified enablement and the doctrine of equivalents (DOE) as the key doctrines that created the discretion through which examiners and courts could adjust claim scope.[5] Given the importance and breadth of its contributions, *Complex Economics* has unsurprisingly served as a platform for a rich and diverse literature in the twenty years since it was published.

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*Professor of Law, Washington University School of Law in Saint Louis. I thank the participants in the *Patent Scope Revisited: Merges & Nelson's "On the Complex Economics of Patent Scope," 20 Years After* conference held at the Indiana University Maurer School of Law on September 23–24, 2010. I thank Mark Janis, in particular, for organizing and hosting the conference.

1. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 Colum. L. Rev. 839 (1990).
2. *Compare* W. Nordhaus, Invention, Growth, And Economic Welfare (1969) (focusing on the effect of the duration of a patent on behavior that generates the technological progress that is disclosed in the patent), *with* Merges & Nelson, supra note 1, at 839 n.2 (citing the nascent, contemporary literature on the fine-tuning of patent scope to affect post-patenting progress). Merges and Nelson's argument that patent scope should be narrower at the margin in certain industries to promote competition among many players for post-patent progress was also important because it served as a counterweight to Edmund Kitch's argument (to the extent that Kitch made a normative argument) that patents should be broad to allow patentees to coordinate post-patent progress. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & Econ. 265 (1977)
3. Merges & Nelson, *supra* note 1, at 880–84.
4. *Id*. at 884–908.
5. *Id*. at 845–68.

In this brief comment, I attempt neither an even-handed assessment of *Complex Economics* on its merits nor a comprehensive review of its diverse intellectual progeny. I put on blinders and focus on a narrow issue. I identify one facet of the complexity inherent in the tailoring of patent scope that *Complex Economics* did not discuss, and I point out the wrinkle that it creates for both Merges and Nelson's project and a line of contemporary scholarship that builds on *Complex Economics*, namely Dan Burk's and Mark Lemley's discussion of "policy levers."[6] Specifically, I focus on the overlooked complexity in the "How?" question of tailoring claim scope—Given the redundancy in the doctrinal mechanisms that could be used to tailor claim scope, how should the tailoring of claim scope be accomplished in any given case?—in order to raise to-date unexpressed concerns about the "Who?" question—Given the presence of Congress, the PTO, and the courts as institutional actors in the patent arena, who should have the authority to set the rules for tailoring claim scope?

When viewed with the benefit of hindsight, the focus in *Complex Economics* on enablement and the DOE as the sole means through which scope-tailoring discretion can be exercised is too narrow. In large part, the narrowness follows from the fact that the enablement/DOE framework has been outdated due to judicial developments that would have been difficult to foresee in 1990. Since 1990, many more scope-tailoring doctrines have crashed the party. The Supreme Court established that claim construction is an issue for judges,[7] ushering in a decade-long dispute over claim construction methodology in the Federal Circuit that vividly demonstrates claim scope's dependence on claim construction.[8] The Federal Circuit discovered enablement's long-lost twin in the application of the written description requirement to original claims.[9] Most recently, the Supreme Court highlighted the potential impact of the section 101 doctrine of patent eligibility on claim scope.[10]

A good start on the needed work of cataloging the array of doctrines that courts can today use to tailor claim scope has already been done in the "policy levers" project of Dan Burk and Mark Lemley.[11] Burk and Lemley take select themes presented in *Complex Economics*, generalize them, and enrich them with an analysis of institutional competence. They argue

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6. Dan L. Burk & Mark A. Lemely, The Patent Crisis And How The Courts Can Solve It (2009).
7. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996).
8. *See generally* Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*) (discussing the dispute).
9. *See generally* Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336 (Fed. Cir. 2010) (*en banc*) (upholding the application of the written description requirement to original claims).
10. *Bilski v. Kappos*, 130 S.Ct. 3218 (2010). Interestingly, at the same time that the doctrines through which courts can tailor claim scope have been on the rise, the doctrine of equivalents—in both its rights-expanding and "reverse," rights-contracting forms—seems to have atrophied as it is today rarely dispositive of the extent of a patentee's rights. On the decline of the doctrine of equivalents, see John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 Stan. L. Rev. 955 (2007). In the twenty years since the publication of *Complex Economics*, the Federal Circuit has only once held that a triable issue of material fact existed under the reverse doctrine of equivalents. Scripps Clinic & Res. Found. v. Genentech, Inc., 927 F.2d 1565, 1581 (1991).
11. Burk & Lemley, *supra* note 6.

that patent protection can be tweaked on many margins (including, but not limited to, claim scope), that the systematic tweaking of patent protection on an industry-by-industry basis can bring patent protection closer to its optimum,[12] and that the judiciary (rather than the PTO or Congress) is the institution that should be entrusted with the task of tailoring patent protection through the adjustment of doctrinal policy levers.[13] In the course of their much larger project, Burk and Lemley formulate a list of doctrines that can today be conceptualized as policy levers for tailoring claim scope.[14]

While the increase in the number of potential scope-tailoring doctrines or policy levers over the last two decades has been well documented, one of its ramifications has not. To date, the superabundance of policy levers for tailoring patent scope has been used (albeit implicitly) to argue that that the task of creating industry-specific patent protection has become easier. In a sense, this is true. It is often easier to fix a leaky faucet when you have more tools in the toolkit. However, fixing a leaky faucet and fixing inefficiencies in patent law are different in a way that is important to remember: the goal of a plumber in fixing a sink is generally to fix *this* sink, whereas the goal of the Federal Circuit in fixing inefficiencies in patent law is not simply to fix the rights of *this* plaintiff and *this* defendant but also, in the course of doing so, to establish clear precedent that can be followed in similar cases in the future. It is the need for clarity in the choice of which redundant, scope-tailoring policy lever to use that makes the enterprise of tailoring claim scope on an industry-specific basis, well, more complex than has been acknowledged.[15] The redundancy among policy levers gives rise to a "How?" question on the level of system design: Of the many possible policy levers that could be adjusted to affect claim scope, how should the tailoring of claim scope be achieved as a doctrinal matter? Which of the many possible levers that could be pulled should be in any given case?

This system-design question was already a theoretical problem in the narrow enablement/DOE framework of *Complex Economics*. Why use a claim validity doctrine, like enablement, to narrow a patentee's rights in one situation and an infringement doctrine, like the

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12. Burk and Lemley also adopt a more diverse set of normative justifications for identifying the optimum, and thus expanding or contracting claim scope, than Merges and Nelson did.

13. There are significant differences between the "discretion" of judges and examiners that Merges and Nelson posited, *see* Merges & Nelson, *supra* note 1, at 839–42, 852, and the authority of courts to use policy levers upon which Burk and Lemley rely. However, these differences are elided here.

14. Burk and Lemley note that claim scope can be affected by the definition of the PHOSITA in the disclosure doctrines, Burk & Lemley, *supra* note 6, at 114–16, the existence of the written description doctrine, *id*. at 118–22, the "abstract ideas" strand of section 101 doctrine, *id*. at 122–24, many of the distinct sub-doctrines within the doctrine of equivalents (including reasonable interchangeability, *id*. at 124–25, the element-by-element analysis, *id*. at 125–26, and the pioneering-patent doctrine, *id*. at 127–28), and the reverse doctrine of equivalents, *id*. at 128. However, Burk and Lemley do not consider the impact of restrictions on functional claiming. *See, e.g., infra* notes 17-20 and accompanying text.

15. Technically, the redundancy creates a system-design problem whether or not courts tailor claim scope in an industry-specific manner. Industry-specific tailoring only compounds the problem.

reverse DOE, to narrow a patentee's rights in another? However, the system-design question has become more pressing as the redundancy among the policy levers has grown. Some new redundancies have already been recognized by the Federal Circuit. For example, the Federal Circuit has openly pondered why it is appropriate to use written description to invalidate overbroad claims in one case and claim construction to narrow claim scope in another.[16] Other redundancies are yet to be identified and, in the future, are likely to lead to further confusion. For example, consider the juxtaposition of two recent cases in which the Federal Circuit invalidated broad, functionally defined claims for lack of sufficient structural embodiments in the written description. In computer software cases, the Federal Circuit has repeatedly held that purely functional claim language triggers the section 112, paragraph 6 rules of means plus function claiming and that the failure to disclose a structure that is capable of performing the claimed function makes the claim indefinite under section 112, paragraph 2.[17] In a biotechnology case, the Federal Circuit addressed a claim that it acknowledged was drafted in purely functional language, but it failed to even consider the relevance of section 112, paragraph 6 to the issue at hand.[18] Rather, it concluded that the functional claim language, coupled with a lack of any structure that was capable of performing the claimed function in the written description, rendered the claim invalid under the written description doctrine of section 112, paragraph 1.[19]

Why these two radically different doctrinal routes were taken in two cases that both presented the same policy problem—functional claim language without any structural embodiments being disclosed in the written description—is difficult to understand from a rational system-design perspective.[20] (From a pragmatic perspective, the difference can be explained

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16. In some instances, the choice might not affect the rights of the parties in a patent infringement case (although using claim construction to narrow the claim would leave the claim valid and enforceable against other potential infringers). *Compare* Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1252–58 (Fed. Cir. 2004) (holding that a broad claim encompasses after-arising technology and that it is invalid for lack of sufficient written description), with *id*. at 1261–63 (Bryson, J., concurring) (arguing that claims should be construed narrowly so as not to encompass after-arising technology). In other instances, however, opting for claim construction rather than written description as the relevant policy lever might lead to different outcomes. LizardTech, Inc. v. Earth Resource Mapping, Inc., 433 F.3d 1373, 1376–78 (2006) (Rader, J., dissenting from the denial of a petition for rehearing *en banc*) (addressing the "puzzling" juxtaposition of different substantive outcomes in a claim construction case and a written description case).

17. Blackboard, Inc. v. Desire2Learn Inc., 574 F.3d 1371 (Fed. Cir. 2009); Aristocrat Techs. v. Int'l Game Tech., 521 F.3d 1328 (Fed. Cir. 2008).

18. Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336 (Fed. Cir. 2010) (*en banc*).

19. *Id*.

20. Two possible answers are unsatisfying. First, unlike the software claim, the biotechnology claim did not use the term "means for" in the claim language, triggering a presumption that section 112, paragraph 6 did not govern the construction of the claim. Personalized Media Commc'ns v. ITC, 161 F.3d 686, 703–04 (Fed. Cir. 1998). However, this presumption is supposed to be overcome if the claim employs purely functional language to define a limitation, *id*., and the Federal Circuit noted that the biotechnology claim defined the invention with

as a path-dependent result of how the parties to the litigation framed the issues at hand. More on this below.[21]) In the best of possible worlds in which the redundant doctrines all enforce identical substantive restrictions on claim scope, this redundancy simply detracts from the coherency of patent doctrine. In the more likely of possible worlds, however, this redundancy leads to similar cases receiving dissimilar treatment because each doctrine requires a different quantum of structural disclosure to justify a claim of a particular scope.[22]

To this point, the lesson to be drawn in this comment from the existence of the system-design question might simply be that, if the Federal Circuit takes on the challenge of using more policy levers on an industry-specific basis, it has more on its plate than either Merges and Nelson, on the one hand, and Burk and Lemley, on the other, have acknowledged. However, the system-design question raises another issue—an issue about the institutional competence of the Federal Circuit to be the primary driver of the patent-tailoring process. Burk and Lemley expressly make the argument that the Federal Circuit has the competence to tailor patent protection on an industry-by-industry basis because "[t]he litigation process will provide judges with the information they need to decide cases" in an industry-specific manner.[23] In brief, the argument is that the adversarial system will make parties with narrow interests in upholding their patents into effective purveyors of information about the economics of patent protection in a given industry. If I'm the owner of a biotechnology patent, I have incentives to provide the court with the data supporting the urgent need for broader biotechnology patents in general; if I'm the alleged infringer of a biotechnology patent, I have incentives to provide the court with data demonstrating the costs of broader biotechnology patents in general. However, it is highly questionable whether courts can rely on the parties to provide the information needed to establish in a clear, systematic way which of the redundant policy levers should be used. No party will ever argue that, as a matter of public policy, it would be best to have narrower literal claim scope and then to expand protection under the doctrine of equivalents (as opposed to either broad literal claim scope and a robust reverse doctrine of equivalents or just-right literal claim scope with little effect from the doctrine of

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purely functional language. *Ariad Pharms*, 598 F.3d at 1354–55. Second, the biotechnology case arguably presented something equivalent to a "single means" claim to which the section 112, paragraph 6 rules do not apply. 35 U.S.C. § 112, ¶ 6 (2010) (specifying a rule of claim construction for "combination" claims). However, the rule for "single means" claims is that they are categorically invalid, regardless of the substantive nature of the disclosure, *In re* Hyatt, 708 F.2d 712 (Fed. Cir. 1983), so the biotechnology claim could have been invalidated on that ground. For a more in-depth discussion of the redundancy of the written description doctrine and the restrictions on the use of functional claim language that led to congressional adoption of section 112, paragraph 6, see generally Kevin Emerson Collins, *Tailoring Patent Scope with Disclosure Standards and/or Functional-Claim Rules* (work in progress).

21. *See infra* notes 24-27 and accompanying text.

22. *See*, *e.g.*, *supra* note 16.

23. Burk & Lemley, *supra* note 6, at 104. Merges and Nelson also implicitly argue that both courts and examiners can gain access to the needed information insofar as they argue in favor of judges and examiners exercising discretion in the shaping of claim scope on an industry-by-industry basis.

equivalents in either direction). If the party wants to broaden the scope of the patent before the court, its self interest will never urge it to make the first half of the argument (narrow literal claims). If the party wants to narrow the scope of the patent, its self interest will never allow it to make the second half of the argument (expansive protection under the doctrine of equivalents). Similarly, no patent owner will ever argue that written description should be abandoned but enablement should be interpreted in a robust way so as to invalidate many patents, including the patent at issue in the litigation. The self interest of litigants in Article III courts will likely not prove to be an effective vehicle for advancing the public interest in a coherent patent regime for tailoring claim scope. The system-design question requires discussions of the costs and benefits of alternative means of reaching a substantive end, and parties are usually only interested in providing information when the information is probative of whether or not a substantive end should be reached.

The institutional competence of the Federal Circuit to decide the second-order "How?" question is yet further undermined because cases on appeal to the Federal Circuit rarely present a smorgasbord of the redundant policy levers from which the Federal Circuit could choose. Cases are usually tracked or framed as, for example, either claim construction or written description cases by the time they reach the Federal Circuit. The framing may exist from the beginning: it may result from the parties' strategic choices in the pleadings.[24] Or, the framing may be an artifact of the manner in which the district court chooses to resolve the case. In theory, the Federal Circuit could attempt to overcome the doctrinal frame in which a case is presented by performing its own analysis, using oral argument to raise issues that were not briefed, and requesting additional briefing from the parties.[25] However, the Federal Circuit rarely demonstrates any interest in deviating from the parties' framing of the issues.[26] If the parties or the district courts possess the power to set the frame—if they can present to the Federal Circuit a single doctrinal policy lever that the court must opt either to pull or not to pull—then the Federal Circuit's patent jurisprudence on claim scope is likely to resemble a game of "whack-a-mole"[27] rather than a rational process of industry-specific patent tailoring. Distinct opinions are likely to pound away on distinct doctrines, one after the other and in an uncoordinated fashion.

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24. For example, in the first case in which written description was applied to original claims, the alleged infringer argued that the claims at issue were invalid under the written description doctrine, but they did not raise enablement. Univ. of California v. Eli Lilly & Co., 119 F.3d 1559 (Fed. Cir. 1997).

25. Amicus briefs might prove useful to the extent that the authors are not proxies for the parties' interests (like trade associations often are).

26. The Federal Circuit's heavy dependence on the parties' framing of the issues can be clearly seen in the Federal Circuit opinions that track the arguments in the parties' briefs in minute detail, even when the issues presented are pure issues of law like statutory construction. *See*, *e.g.*, Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1343–51 (Fed. Cir. 2010) (*en banc*) (allowing the parties to frame what is at stake in the construction of section 112, paragraph 1).

27. Kevin Emerson Collins, *An Initial Comment on Ariad: Written Description and the Baseline of Patent Protection for After-Arising Technology*, 2010 Patently-O Patent L.J. 60, 67, *available* at http://www.patentlyo.com/files/collins.ariad.pdf.

In sum, the complexity of the system-design, "How?" question of tailoring claim scope is an issue that neither *Complex Economics* nor its intellectual progeny has noted. This question, in turn, raises a "Who?" question. Even if the Federal Circuit has sufficient institutional competence to determine industry-specific rules for the substantive scope of patent rights, it may not be an institution that is well positioned to establish clear rules that determine which of the many redundant policy levers that could be used to tailor patent scope should be used in any given case.■